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Science and Technology for Tomorrow's Air and Space Force

Success Story

DISTRIBUTED MISSION OPERATIONS EFFECTIVENESS

The Human Effectiveness Directorate, Warfighter Training Research Division's Training Systems Technology Team is providing valuable data to Air Combat Command (ACC) relating to the design and application of Distributed Mission Operations (DMO) systems for aircrew training. These data substantially enhance the effectiveness of DMO systems for fighter pilots and air weapons controllers by identifying the tasks and missions best suited for DMO, defining the system capabilities required for effective distributed training, and creating a strategy for developing future training programs using DMO.

Research using DMO for Flight Leader Upgrade, Instructor Pilot Upgrade, and Fighter Weapons Instructor Course training programs is demonstrating the return on investment realized through the effective integration of learning objectives-based DMO syllabi with existing operational academic and live-flight aircraft training.

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Accomplishment

Structured interviews with F-16 instructor pilots and unit commanders indicated that many mission-qualified pilots lacked recent experience in four-ship tactics due to high cost, scheduling difficulties, constrained airspace, and very limited availability and interactions with Airborne Warning and Control System (AWACS) controllers. The directorate's Training Systems Technology Team developed and tested DMO training syllabi and measurement methods that augment live-flight aircraft training with high-fidelity, multiplayer simulation.

The training research syllabi involve the four-ship, F-16 DMO test bed, located in Mesa, Arizona, integrated with the AWACS simulation facility, located at the directorate's site at Brooks City-Base, Texas, and the constructive integrated air defense system developed and operated by the Air Force Information Warfare Center, Kelly Air Force Base, Texas. With the support of ACC's DMO office, the directorate conducted training exercises for mission-qualified F-16 pilots, supported by an instructor pilot and AWACS controllers.

Results demonstrate that complementing aircraft training with DMO enhances warfighter proficiency and reduces the need for repeating training flights at the home unit. In addition, the Fighter Weapons School syllabus served as the initial test and validation for new F-16 weapons employment standards implemented in the school. Validation in the Mesa test bed resulted in significantly more rapid evaluation and adjustment of the standards than possible, using live flight alone.

Background

The Air Force's DMO program is a major advance in ground-based training that allows pilots and other warfighters to train for complex, multiplayer combat operations using a network of flight simulators and other systems. DMO is a shared training environment comprised of live, virtual, and constructive simulations that allow warfighters to train individually or collectively at all levels of war.

DMO allows multiple players at multiple sites to engage in instructionally valid training scenarios designed to focus on individual, team, and intra-team competencies development and refresher training within a realistic combat-oriented environment. DMO allows participation, using almost any type of networkable training device, from each weapon system and mission area.

Human Effectiveness
Support to the Warfighter

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-HE-18)